DOCUMENT RESUME

ED 377 648 EC 303 576

AUTHOR MacDonald, James D.; Wilkening, Paula L.
TITLE Parent-Child Relationships for Communicative Development: An Intervention Study.
PUB DATE Jun 94
NOTE 28p.; Paper presented at the Annual Meeting of the American Association of Mental Retardation (118th, Boston, MA, May 31-June 4, 1994).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Child Development; Communication Skills; *Developmental Disabilities; Early Intervention; *Interaction Process Analysis; Interpersonal Communication; Intervention; *Language Acquisition; *Parent Child Relationship; *Parent Education; Preschool Education

ABSTRACT

This study examined parent-child relationships during intervention with 25 preschoolers having developmental disabilities. Both parent and child performances were analyzed on a series of behavioral attributes reflecting developmentally appropriate child goals, adult strategies, partnership goals, and potential interactive problems. Videotaped samples throughout treatment were the primary source of interactive analyses. Comparison of pre and post treatment performance indicated developmentally positive changes in social-communicative behaviors for both parents and children. Findings supported a parent-based treatment model that focuses on building stable interactive relationships as the primary vehicle for communicative development. Generally the findings show that as parents become interactively balanced, matched, responsive, and less controlling, the children participate more in the interactions and increase their communicative rate. (Contains 38 references.) (Author)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

EC

ED 377 648

PARENT-CHILD RELATIONSHIPS FOR COMMUNICATIVE DEVELOPMENT: AN INTERVENTION STUDY

James D. MacDonald, Paula L. Wilkening

The Nisonger Center

Speech & Hearing Science

The Ohio State University

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

Running Head: PARENT-CHILD RELATIONSHIPS FOR COMMUNICATIVE DEVELOPMENT

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

James D. MacDonald

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)"

EC 300376

BEST COPY AVAILABLE

Abstract

The study examined parent-child relationships during intervention with 25 preschoolers with developmental disabilities. Both parent and child performances were analyzed on a series of behavioral attributes reflecting developmentally appropriate child goals, adult strategies, partnership goals, and potential interactive problems. Videotaped samples throughout treatment were the primary source of the interactive analyses. Comparison of pre and post treatment performance indicates developmentally positive changes in social-communicative behaviors for both parents and children. The findings support a parent based treatment model that focuses on building stable interactive relationships as the primary vehicle for communicative development. Generally the findings show that as parents become interactively balanced, matched, responsive, and less controlling the children participate more in the interactions and increase their communicative rate.

The view that children become social and communicative long before they have habits of speech and language is supported by researchers (Stern, 1977), theorists (Bruner, 1983; Vygotsky, 1978), language specialists (MacDonald, 1989; Wells, 1981), and educators (Field, 1978; Mahoney, 1988) across several disciplines of child development. These and others have concluded that language emerges from certain kinds of adult–child relationships within natural interactions. In concert with research on preverbal development, views on language development from a transactional perspective have generated a series of intervention models activating the dyad as the developing unit (MacDonald, 1989; McCormick & Schiefelbusch, 1984; McLean & Snyder-McLean, 1978).

To enhance parent–child interaction in a way that supported research findings and theoretical formulations, the ECO intervention model (Gillette, 1989; MacDonald, 1989; MacDonald & Carroll, 1992; Mahoney, 1988) has evolved to address the purposes of assessing parent–child dyads, educating parents, establishing parents in natural therapy roles, and providing direct clinical treatment to children. In the model, adults caregivers were coached to understand and integrate a reciprocal partnership style of interaction into their spontaneous contacts with children as well as to learn to read the child's developmental levels and related communicative needs.

In the ECO intervention model, social and communication development is viewed as a partnership process and, as such, the model proposes a number of changes in the educational and domestic management of preconversational children. Several challenges and dilemmas face those who undertake the problems of preconversational children with developmental delays. First of all, developmental needs, legal mandates, and ethical considerations argue for systematic attention to the social development of preconversational children. Further, parents and other caregivers are inevitably influencing their children's social and communicative development, yet they usually have minimal access to education for that task. At the same time, few professionals have traditionally had access to developmental and practical training in early parent–child relationships, especially in the adult interaction styles found to facilitate communication (MacDonald, 1989). Traditional approaches to language intervention have focused predominantly on structural aspects of language for children who have the conversational competencies needed to develop advanced speech and language for communication, consequently, there is a pressing need for approaches for preparing the child for these competencies and preventing later delays. Finally, two societal events argue for a new model: first, professionals are legally mandated to serve a population whose developmental competencies they have often not been trained to serve (Brown, 1990), and, second, parents have legal access to direct involvement in their child's education plans, yet they rarely have access to education that would make them competent for that involvement.

This paper will report the findings of an intervention model that addresses the above challenges in three ways. First it will identify a clinical taxonomy for adult–child communication development that organizes goals and strategies that are specific to early communicative development. Second, a partnership focused model for educating parents and professionals about the interactive development of communication will be introduced. Finally, research findings will address the development of a clinical model for use in parent–child programs.

Background of the ECO Model

A major thrust of the work has been to identify and operationalize some of the critical child stages involved in communicative development as well as adults interactive styles that appeared to influence communicative contacts. The clinically based research has identified a series of recurrent problems or limitations found in both children and parents as they interacted. Figure 1 introduces the major child and adult competencies that the ECO curriculum addresses. The figure indicates that five child competencies are the focus of development; social play, turntaking, nonverbal communication, language, and conversation. The figure also shows that at each of the child's stages adults support the child's development by learning to use five generic interactive styles; interactive balance, match, sensitive responsiveness, child based non-directiveness, and emotional attachment.

Insert Figure 1 about here

The intervention model that evolved out of the program of clinical research addressed the issue of how adults and children develop partnerships that support the child's development from primary social interaction habits into habits of nonverbal communication, language and conversation (Gillette, 1989; MacDonald, 1989; MacDonald & Carroll, 1992). The ECO model was designed to foster an active and reciprocal partnership continuum from early noninteractive stages through conversational use of language. To establish such relationships, the model proposed that the child's significant adults adopt flexible interactive styles and to fine-tune themselves along the lines of five principles of interaction that widespread findings in child development support as powerful rules that govern interactions of adults in successful language learning partnerships.

The children's competencies in the model are those that serve as an interactive bridge from the most primitive contacts to conversational habits. The model focuses heavily on the importance of social play competencies in developing the joint activity relationship needed both to develop shared meaning for language as well as interactive skills for social competence (Bruner, 1983; Peck, 1989; Wells, 1981). One major goal in social play is for the child and adult to perform as a dynamic unit, one in which the power gradually shifts from the dominant person to the developing person (Goldberg, 1977; Stern, 1985; Vygotsky, 1978). A second major competency of the model, turntaking, involves the child in learning the rules of give and take and reciprocity, skills that are often barely evident in many children with developmental delays (Field, 1980; Girolometto, 1988; Jones, 1980). In learning to take turns, the child moves away from a passive reactive role to one that allows him to engage others and to interact at a sufficiently high rate to set the stage for natural conversation learning. The next competency, nonverbal communication, emphasizes the critical importance of children communicating habitually in various nonverbal ways before speech emerges. Children and adults learn to build relationships that support the child's ability to effectively communicate with any observable behaviors regardless of their acceptance as conventional messages (Bates, 1976; Siegel-Causey, Ernst, & Guess, 1987; Trevarthen, 1977). The fourth competency, language, focuses on communicatively useful meanings that are child experience-based rather than academic or cognitive

concepts that bear little generalized utility in early communication. The focus is on *interactive language* which emphasizes language for socialization more so than for storage and academic retrieval (Brown, 1973; Snow, 1984; Wells, 1986). The final competency, conversation, results from the first four and stresses the use of language in the variety of social roles that will assist the child in integrating into friendship, learning and vocation. The model is more concerned with the child's versatility in using language for interactive purposes beyond passive and reactive roles as well for social as well as instrumental purposes, and to learn as well as to teach (Chapman, 1978; Lund & Duchan, 1983).

The ECO model supports the development of the above child competencies by educating and clinically restructuring adults' interactive styles along five generic principles of adult interaction. The interactive styles are generic in the sense that parents can learn them when the child is beginning to interact and then adapt the same strategies as the child develops through communication and conversation. The first principle, Balance, addresses the notion that children learn to be social and communicative within partnerships that are balanced and reciprocal and that penetrate both casual and structural interactions (Bronfenbrenner, 1979; Girolometto, 1988; Young, 1988). This suggests that a child will learn from adults to the extent that the adult is an active partner who is like the child, follows his motivations, and has a meaningful relationship in which give-and-take is the rule of interacting more than are one-sided controls.

Match, the second principle adults learn, suggests that a child will learn from others to the degree that the others act and communicate in ways the child is able to do. Optimally their behavior will match the child's competencies, interests, and style (Cross, 1985; Lieven, 1984; Mahoney, 1988) and do so progressively by showing the child a feasible next step (Hunt, 1965; Vygotsky, 1978). The third principle, responsiveness, proposes that a child's social and communicative development depends on his significant others responding sensitively to subtle, emerging behaviors that are developmental steps to interaction and communicating (Bates, 1976; Goldberg, 1977: Mahoney, 1988; Rosenberg & Robinson, 1985). Nondirectiveness, the fourth adult principle, suggests that children learn most efficiently and stay interacting more when they have freedom to initiate and respond from their own experiences and motivations rather than when they are in a passive role of responding to others' directive agenda (Mahoney, 1988; Stern, 1977). The final adult principle addressed by the model is Emotional Attachment. This suggests that in order to become a habitual social communicator, a child must be attracted to people as powerful sources of reinforcement, modeling and enjoyment (Greenspan, 1986; Newson, 1979).

Method

Subjects

The subjects in the study were participants in a parent-child language intervention program designed for children with developmental disabilities and their families, described in detail elsewhere (Gillette, 1989; MacDonald, 1989). Briefly, families were referred to the program from area parent associations, preschool classrooms, and private sources. The program ran for six months with biweekly sessions of 11/2 hours followed by three monthly posttreatment sessions. Each session was videotaped, and the videotaping was standardized to include a sample

of people play (no toys), single toy play, and multiple toy play. Each treatment session consisted of four components: assessment of parent and child, education and negotiation for a treatment plan, model feedback training, and home program coding. A detailed description of the treatment programs may be found in MacDonald (1989).

The study sample consisted of 25 parent-child pairs. The children ranged in age from 23 to 64 months with a median age of 38 months. Twelve of the children were diagnosed as having Down Syndrome, four as exhibiting pervasive autistic features, four as severely retarded, four as language delayed with no diagnosis of retardation, and one was deaf with spina bifida. Based on assessments with the Receptive Expressive Language Scale (REEL) (Bzoch & League, 1970) and the Adaptive Behavior Scales for Infants (ABSI) (Leland, Shoaee, McElwain, and Christie, 1980), all children displayed a delay of at least one year in communication and significant delays in at least one other area of development.

The adults in all cases were parents, and they represented a relatively broad spectrum of socioeconomic levels and backgrounds. In all but one case, the mother was the participant in the program. Of the 24 mothers, 18 were primarily homemakers or homemakers who also did some work outside the home. The remaining mothers included an office worker, a computer specialist, a business executive, a mail clerk, a bank teller, and a teacher's aid. The only father in the group was a physician.

Measures

A total of 125 videotaped samples of parent–child play were examined during the study. All interaction samples were rated across a series of attributes, which related to the 5 major interactive goals that represented the ECO competencies -- social play, turntaking, preverbal communication, language, and conversation -- and the 5 ECO adult principles --balance, match, responsiveness, nondirectiveness, and emotional attachment. A series of attributes drawn from The ECOScales (MacDonald, Gillette, & Hutchinson, 1989) were used to assess the quality of parent–child social/communicative interactions. The measurement system was based on a 1–9 point scale Likert type rating scale, with "1" indicating the lowest value of the attribute and "9" indicating the highest value. Table 1 presents the ECOScale measures used in the treatment program.

Insert Table 1 (ECOScales) about here

Procedures

All of the participating families were videotaped on five separate occasions over a period of eight months. The occasions of the videotaping corresponded to five key points in the treatment program: (1) One months before treatment began; (2) The day treatment began but before any recommendations were made; (3) Three months after the beginning of the program; (4) The end of the program, 6 months after it had begun; and (5) one month after the program ended. On each occasion, a total of five play interactions were videotaped, and included episodes of both object centered and people focused play. The rated samples were all drawn from the second through fifth minutes of the second toy focused play interaction.

Reliability

To maintain an acceptable level of interrater reliability throughout the study, one of the program developers rated 25% of the videotaped samples of interactions. These rating were compared to ratings made by two independent raters who were graduate students in Speech/Language Pathology, trained in the use of the ECOScales (MacDonald, et. al., 1989). The graduate raters also independently scored 25% of the experimental tapes. Reliability scores were obtained by computing the percentage of agreement between their ratings for all measured attributes (Rosenberg & Robinson, 1985). To ensure a high level of rater agreement, 89% was established as the level at which raters were considered to be reliable. Table 2 presents the percentage agreement between the ratings of the experimental samples rated by the program developer and the two independent raters.

Enter Table 2 About Here

Results

The experimental findings reflected judgments of two groups of observers on the interactive performance of both children with disabilities as well as their parents. The two groups are the professional observation team and an independent group of judges.

Clinical Judgments Before Intervention

Two pre–treatment measures were taken at one month before and the day treatment started. As illustrated in Figure 2, child performances, adult strategies, interactive goals and problems were seen as changing minimally in the month immediately preceding intervention.

Insert figure 2 about here

Comparison of Pre-treatment and Post-treatment Rating Scores

Measures before and after treatment were taken from the second and fourth videotaped sessions spanning a six month period. Figure 3 illustrates the changes in ratings from pretreatment to posttreatment, showing that judges evaluated adults and children as consistently higher on all performance measures. The 10 items relating to Child Goals revealed a total average score for all children of 24.5 points during the pretreatment period, with an increase of competency level 35.3 points at the time of the posttreatment measure. The findings on the 11 Adult Strategies showed a more pronounced change with a total average score for all parents of 32.5 at pretreatment shifting to 70.3 at posttreatment, a change from low performance to frequent performance. Total average ratings of the 5 Interactive Goals increased from 12.6 at pretreatment to 20.2 points at posttreatment, indicating a small but relatively consistent improvement. When the 8 Interactive Problem items were measured, the group improved from an overall average of 28.1 points to 41.9 points, indicating a moderate amelioration of the problems.

Insert Figure 3 about here

Changes in Interactive Competence

Overall, the children in the study were judged to be more communicatively competent at post–treatment than they were at pre–treatment. Figure 4 illustrates that after treatment children were judged as stronger on all of the 10 interactive goals. The most change in the children was seen as falling in the areas relating to a more developed turntaking style and communicating more readily with others in their environment. This means that the children were viewed by the judges as exhibiting an attitude of give and take in their play interactions, where they both initiated and responded meaningfully to the turns of their parents. Children were also seen as using any behavior capable of effectively engaging the adult's attention in communicatively meaningful ways. The smallest post–treatment gains were seen in items addressing how well the children were able to make themselves understood by their adult partners, and their use of grammatical rules, not surprising findings for a minimally verbal group.

Enter Figure 4 About Here

In general, parents were seen by the judges as making positive changes in their interaction styles with their children. Figure 5 illustrates the consistent changes in ratings of the parents in terms of overall interactive strategies. The changes are more pronounced than for the child goals, with every strategy rising at

least twice as high at posttreatment. After treatment judges characterized parents as being more capable of acting in ways that their children could act (matching), as well in ways that related meaningfully to the children's immediate experiences (responsiveness). Parents were also seen as being less controlling in interactions (nondirective), thereby allowing their children to assert their own motivations or competencies within play exchanges. Judges saw the least amount of positive change in the ability of the parents to respond to their children, and the amount of verbal matching of the children's communications.

Enter Figure 5 About Here

Changes in Effect Size

To help in interpreting the differences in the ratings, an "effect size" analysis (Cohen, 1988) was performed. This analysis represents the difference between the two ratings for an item or scale divided by the common variance for the two ratings. An advantage of the effect size measures that there are conventional guidelines established for judging the meaningfulness of effect sizes.

Cohen (1988) has suggested a three–level classification of magnitudes of effect sizes—small, medium, and large, corresponding to effect sizes of .2, .5, and .8, respectively. Table 3 uses Cohen's classification for the ECOScale data (and adds another category of "very large" for effect sizes of 1.2 or larger). This shows that the magnitudes of the changes in child–adult interaction vary markedly with the introduction of ECO treatment. Of equal interest, however, is the pattern of changes in ECOScale items across the competencies and the types of items (child goal, adult strategy, interactive goal, and interactive problems).

Enter Table 3 About Here

First of all, the comparison of Occasions 1 and 2 suggests stability of parent–child interactions with these children with a history of communication delay. Only a very few (5 of 34) of the effect sizes for occasions prior to treatment showed any meaningful change (and in fact, none were statistically significant, either). In contrast, virtually all of the effect sizes (66 of 68) for the two analyses involving pre–post treatment comparisons were medium, large, or very large (in fact, only two were not statistically significant at the .05 level).

Equally encouraging is the fact that all of the effect sizes for the child goals were classified as medium, large, or very large. The early treatment emphasis on social play and turntaking is also reflected in the "very large" effect sizes for the interactive goals of "becoming play partners" and "becoming turntaking partners." Likewise, the largest effect size observed for child goals was "showing a turntaking play style." Child goals of "intentionally communicating with others," "communicating nonverbally," and conversing for a variety of reasons" also resulted in "large" effect sizes. Contrast these with those child goals with only medium effect sizes, "beginning to communicate verbally," "using varied vocabulary," "following grammatical rules," and "stay in verbal conversations." Given the group of children in the study, many with moderate to severe delays, one would expect less growth on these later, more verbally oriented goals than one would on goals which could be accomplished more readily by nonverbal means.

On the other hand, this group of children with their parents still made pre–post gains (Occasions 1 to 5) in the major interactive goals of language and conversation that were classified as "medium."

Social Validity

Beyond traditional experimental measures, the findings also include the judgments of independent observers not involved with the families in the program. The rational for this approach was that since the ultimate goal of communication treatment is for children to successfully integrate into society, then it is of considerable interest to see if representatives of society observe the kinds of interactive changes that professionals observe. The social validity measures can be seen as a ecological validation of professional views since the ultimate test is not experimental data but social acceptance.

Eighteen adults who were independent of the treatment program, but whom could be considered to be potential members of the child's social environment were asked to rate a series of scaled attributes relating to performances in the dyad from the pre treatment to posttreatment periods. Twelve randomly selected, one-minute video samples, representing six parent-child dyads from the experimental study, were rated on a series of attributes relating to the goals of treatment (Table 4). A 9 point Likert type scale was used, with '1' meaning a poor description of the interaction and with '9' representing an excellent description.

Enter Table 4 About Here

Examination of the data relating to the social validity of the ECO intervention program, revealed that raters did perceive improvement for all interactive dyads following a period of treatment. Table 5 presents a summary of the ratings across all judges for the six dyads both before and after involvement in the ECO intervention program. Results of *t* tests of the differences between pre and post means and effect sizes are also shown.

Enter Table 5 About Here

Preliminary analysis of the data revealed that judges uninvolved in the treatment program were in close agreement with the experimental analyses of the program in that they consistently discriminated between pre- and posttreatment interactions. Examination also revealed a positive changes in attributes of both child and adult interaction that were addressed by the ECO program.

Discussion

The present study provides a preliminary model for exploring the clinical intervention programs addressing interactive changes of both children with delays and their adult partners. Early communication skills are viewed as dynamic functions of natural interactions and as such these skills can be measured both by direct observations and by perceptual judgments of samples of independent observers who represent societal views of children's communications. With the move toward integrating children with disabilities into the mainstream, it becomes critical to understand what nonprofessional members of society consider acceptable communicative behaviors and to involve these consumers in evaluation of programming and determination of critical goals.

The current study illustrates that parents will actively participate in intervention with primarily preverbal children with disabilities. While the parents major concern, at first, was speech and language, they learned to appreciate and activate preverbal activities that are prerequisite to language expression. The model attempts to place children and their partners in the kinds of reciprocal context that are only beginning to be fostered in intervention models. This study then provides preliminary findings for a relatively new style of intervention - one that fosters relationships more that teaches child skills and one that begins to prepare children for language in early nonverbal interactive stages.

Another characteristic of the model is the parallel role it gives parents: parents interactive skills are as much the target of training and measure of change as the child's performance. The study reveals that parents are willing to alter their interactive styles especially when they experience effects on the child. This development of fine tuning skills relates closely to the social constructivist theories of development that predict that a child;s social and cognitive gains evolve from each person in a relationship constructing reality as they engage in reciprocal exchanges.

A final implication of the present study is for the role of social play as the characteristic medium for learning to communicate. The therapeutic model in this

study involved several variations of contingent play in joint routines. The program taught parents several facilitative styles of interacting but did not encourage directive, didactic exercises that characterize many traditional intervention approaches. This focus on social play suggests a paradigmatic shift in early intervention especially for children yet to develop the social relations needed for generalized learning to communicate.

Acknowledgments
The research was supported in part by a grant from the U.S. Department of Education. Appreciation goes to Yvonne Gillette for her extensive management of many of the programs in this study. We thank the children and their families for their cooperation and genuine efforts, and special thanks to Tom Hutchinson for his assistance in data analysis.

References

Bates, E. (1976). *Language and context: The acquisition of pragmatics.* New York, NY: Academic Press.

Bronfenbrenner, U. (1979). *The ecology of human development.* Cambridge, MA: Harvard University Press.

Brown, R. (1973). *A first language: The early stages.* Cambridge, MA: Harvard University Press.

Brown, W. (1990). *Early intervention regulation.* Horsham, PA: LRP Publications.

Bruner, J. (1983). *Child talk.* New York, NY: W.W. Norton.

Bzoch, K.R., & League, R. (1970). *The receptive-expressive emergent language scale for the measurement of language skills in infancy.* Gainsville, FL: The Tree of Life Press.

Chapman, R. (1978). Comprehension strategies in young children. In J. Kavanaugh & W. Strange (Eds.), *Speech and language in the laboratory, school, and clinic.* Cambridge, MA: MIT Press.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences (2nd. ed).* Hillsdale, NJ: Lawrence Erlbaum.

Cross, T.G. (1985). Habilitating the language impaired child: Ideas from studies of parent-child interaction. *Topics in Language Disorders*, 4, 1-14.

Field, T. (1978). The three R's of infant-adult interactions: Rhythms, repertoires, and responsivity. *Journal of Pediatric Psychology*, 3, 131-136.

Field, T. (1980). *High-risk infants and children: Adult and peer interactions*, New York, NY: Academic Press.

Gillette, Y. (1989). *Ecological programs for communicating partnerships: Models and cases.* Austin, TX: Special Press, Inc.

Girolometto, L. (1988). Developing dialogue skills: The effects of a conversational model of language intervention. In K. Marfo (Ed.), *Parent-child interaction and developmental disabilities.* New York, NY: Praeger.

Greenspan, S. (1986). *First Feelings: Milestones in the emotional development of your baby and child.* New York, NY: Viking Penguin.

Goldberg, S. (1977). Social competence in infancy: A model of parent-infant interaction. *Merrill-Palmer Quarterly*, 23, 263-277.

Hunt, J. (165). Intrinsic motivation and its role in psychological development. In D. Levine (Ed.), *Nebraska symposium on motivation*, Lincoln, NB: University of Nebraska.

Jones, O.H.M. (1980). Prelinguistic communication skills in Down's syndrome and normal infants. In T.M. Field, S. Goldberg, D. Stern, & A.M. Sostek (Eds.), *High-risk infants and children: Adult and peer interactions.* New York, NY: Academic Press.

Leland, H., Shoaee, M., McElwain, D., & Christie, R. (1980). *Adaptive Behavior Scale for Infants and Early Childhood (ABSI).* Columbus, OH: The Ohio State University.

Lieven, E. (1984). Interaction style and children's language learning. *Topics in Language Disorders*, 4, 15-23.

Lund, N., & Duchan, J. (1983). *Assessing children's language in naturalistic contexts.* Englewood Cliffs, NJ: Prentice-Hall.

MacDonald, J.D., & Carroll, J. (1992). A social partnership model for assessing early communication development: An intervention model for preconversational children. *Language Speech and Hearing Services in Schools*, 23, 113-124

MacDonald, J.D. (1989). *Becoming partners with children: From play to conversation.* San Antonio, TX: Special Press, Inc.

MacDonald, J.D., Gillette, Y., & Hutchinson, T. (1989). *ECOScales manual.* Chicago, IL: Riverside Press, Inc.

Mahoney, G. (1988). Enhancing the developmental competence of handicapped infants. In K. Marfo (Ed.), *Parent-child interaction and developmental disabilities.* New York, NY: Praeger.

McCormick, L., & Schiefelbusch, R.L. (1984). *Early language intervention.* Columbus, OH: Merrill Publishing Company.

McLean, J. & Snyder-McLean, L. (1978). *Transactional approach to early language training.* Columbus, OH: Merrill Publishing Co.

Newson, J. (1979). The growth of shared understanding between infant and caregiver. In M. Bullowa (Ed.), *Before speech: The beginnings of interpersonal communication.* London, England: Cambridge University Press.

Peck, C.A. (1989). Assessment of social communicative competence: Evaluating Environments. *Seminars in Speech and Language*, 10, 1-15.

Rosenberg, S., & Robinson, C. (1985). Enhancement of mother's interactional skills in an infant education program. *Education and Training of the Mentally Retarded*, 163-169.

Seigel-Causey, E., Ernst, B., & Guess, D. (1987). Elements of nonsymbolic communication and early interactional processes. In M. Bullis (Ed.), *Communication development in young children with deaf blindness: Literature review III.* Eugene, OR: Communication Skill Center for Young Children with Deaf Blindness.

Snow, C. (1984). Parent-child in teaching and the development of communicative ability. In R. Schiefelbusch & J. Pickar (Eds.), *The acquisition of communicative competence.* Baltimore, MD: University Park Press.

Stern, D. (1977). *The first relationship.* Cambridge, MA: Harvard University Press.

Stern, D. (1985). *The interpersonal world of the infant.* New York, NY: Basic Books, Inc.

Trevarthen, C. (1977). Descriptive analysis of infant communication behavior. In H.R. Schaeffer (Ed.), *Studies in mother-infant interaction.* London, England: Academic Press.

Vygotsky, L.S. (1978). *Mind in society.* Cambridge, MA: Harvard University Press.

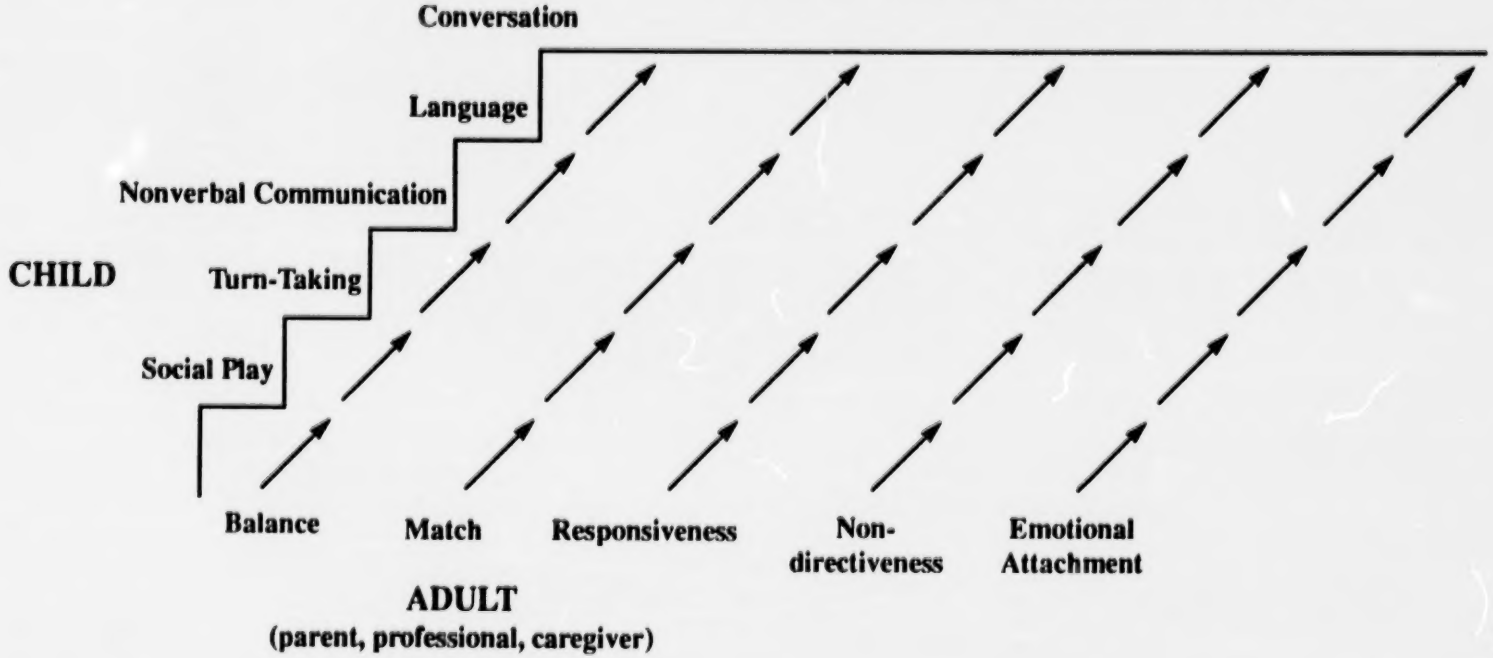
Wells, G. (1981). *Learning through interaction.* Cambridge, England: Cambridge University Press.

Wells, G. (1986). *The meaning makers: Children learning language and using language to learn.* Portsmouth, NH: Heinemann.

Young, J. (1988). *Developing social conversation skills: An intervention study of preverbal handicapped children with their parents.* Unpublished master's thesis, The Ohio State University.

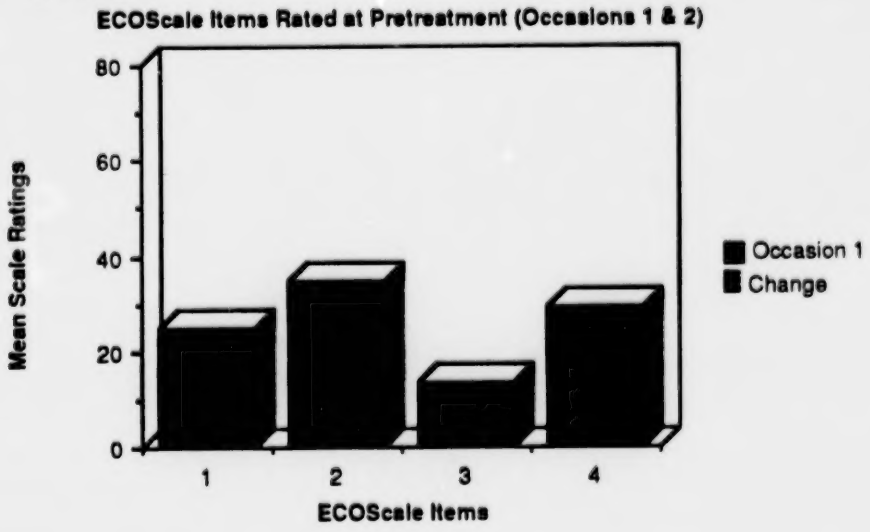
FIGURE 1.

ECO Model for Adult–Child Partnerships
As Contexts For Communication Development



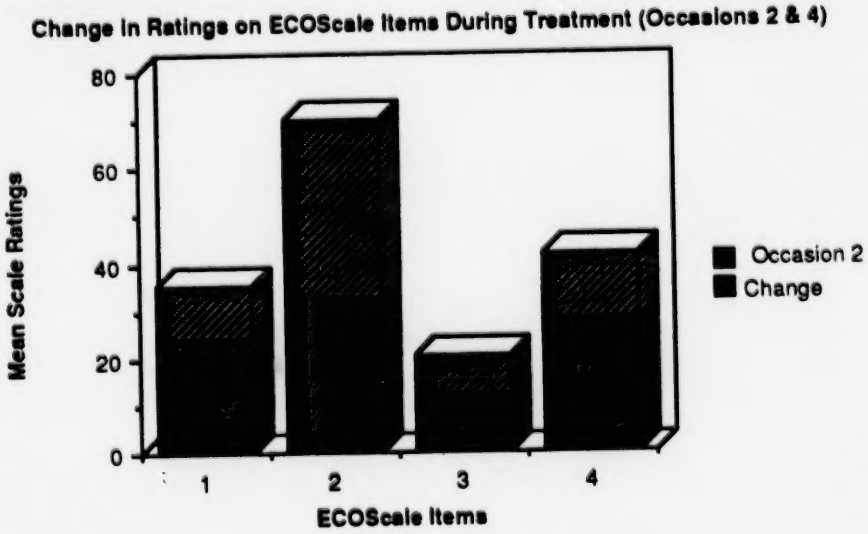
Illustrations of the ECO model in terms of the interactions of five adult interactive styles and five stages of child interactive development.

FIGURE 2.



1. Child Goals
2. Adult Strategies
3. Interactive Goals
4. Interactive Problems

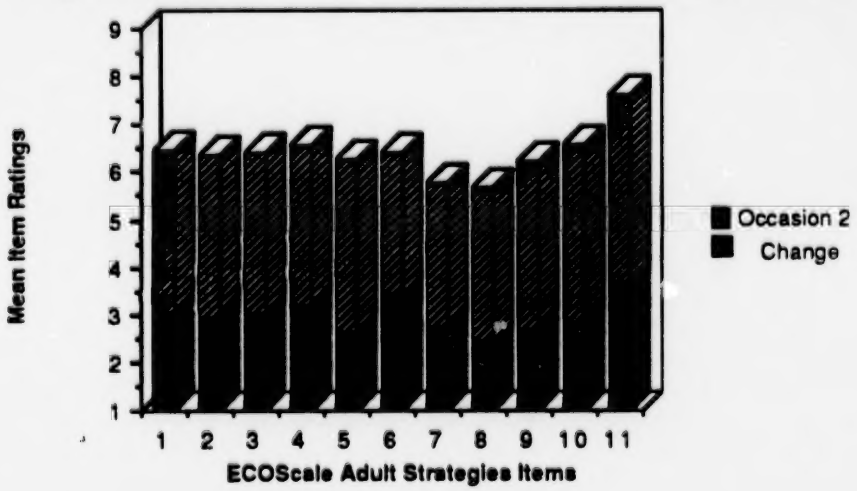
FIGURE 3.



1. Child Goals
2. Adult Strategies
3. Interactive Goals
4. Interactive Problems

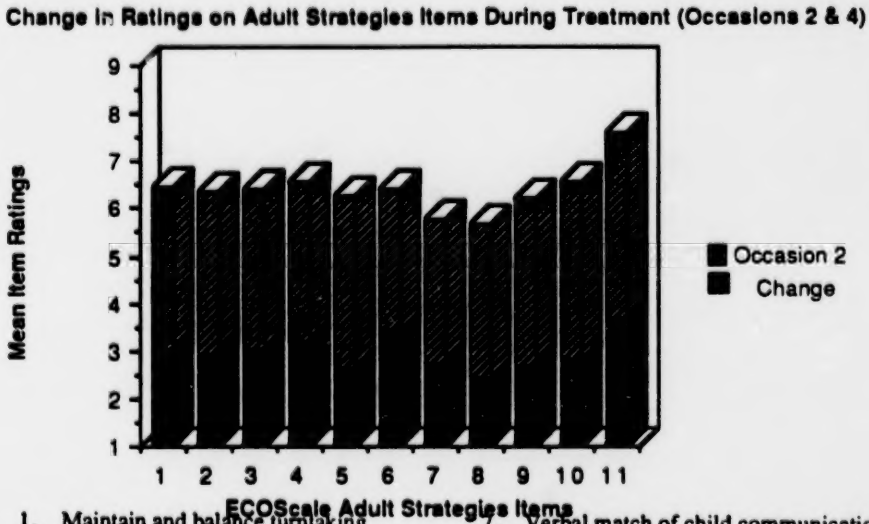
FIGURE 4.

Change in Ratings on Adult Strategies Items During Treatment (Occasions 2 & 4)



1. Show a variety of actions
2. Show a turntaking play style
3. Communicate with others
4. Communicate nonverbally
5. Communicate verbally
6. Make self understood
7. Use varied vocabulary
8. Follow grammatical rules
9. Converse for a variety of reasons
10. Stay in verbal conversations

FIGURE 5.



1. Maintain and balance turntaking
2. Wait, signal, and expect
3. Match child behavior
4. Imitate and animate
5. Match child behavior progressively
6. Respond to child
7. Verbal match of child communications
8. Develop verbal topics
9. Maintain balanced conversation
10. Have social, friendly conversation
11. Direct the child effectively

TABLE 1. Sample of the ECOScale Measures Used in the Treatment Program

BECOMING PLAY PARTNERS		
Interactive Goal	1.	Become play partners
Interactive Problem	2.	Lack of playfulness
Adult Problem	3.	Directive, controlling style
Child Goal	4.	Stay with others in play
	5.	Imitate others
Adult Strategies	6.	Play in childlike ways
	7.	Communicate in ways close to the child's
	8.	Communicate about immediate experience
	9.	Comment more than question or command
BECOMING TURNTAKING PARTNERS		
Interactive Goal	10.	Become turntaking partners
Interactive Problem	11.	Lack of active togetherness
Child Problem	12.	Low interactive participation
Child Goals	13.	Show a turntaking play style
	14.	Use actions in functional and meaningful ways
Adult Strategies	15.	Maintain and balance turntaking
	16.	Match the child's behavior
	17.	Wait, signal, and expect
	18.	Imitate and animate
BECOMING COMMUNICATING PARTNERS		
Interactive Goal	19.	Become communicating partners
Child Problem	20.	Low communicative participation
Adult Problem	21.	Mismatch
Child Goals	22.	Intentionally communicate with others
	23.	Communicate nonverbally
	24.	Begin to communicate verbally
	25.	Make self understood
Adult Strategies	26.	Match child communication progressively
	27.	Respond to the child
BECOMING LANGUAGE PARTNERS		
Interactive Goal	28.	Become language partners
Child Problem	29.	Low verbal and pragmatic skills
Child Goals	30.	Use varied vocabulary
	31.	Follow grammatical rules
Adult Strategies	32.	Verbally match child experiences and communications
	33.	Develop verbal topics
BECOMING CONVERSATION PARTNERS		
Interactive Goal	34.	Become conversation partners
Interactive Problem	35.	Poor conversations
Child Goals	36.	Converse for a variety of reasons
	37.	Stay in verbal conversations
Adult Strategies	38.	Maintain balanced conversations
	39.	Have social, friendly conversations with the child
	40.	Direct child effectively

BEST COPY AVAILABLE

TABLE 2. Average Percentage Agreement Between a Criterion Rater and Two Independent Raters on ECOScale Items Relating to Treatment.

ECOScale Items	Rater 1	Rater 2
Adult Strategies	88.7%	88.5%
Child Goals	93.1%	93.4%
Interactive Goals	90.2%	93.1%
Interactive Problems	89.8%	91.2%

TABLE 3. Magnitudes of Effect Sizes of ECOScale Items Observed at Selected Intervals Before and After Treatment

	Before Treatment to Beginning of Treatment (Occasions 1 to 2)	Beginning of Treatment to End of Treatment (Occasions 2 to 4)	End of treatment to Month after Treatment (Occasions 4 to 5)
Child Goals			
1. Use actions functionally, meaningful	Small	Medium	Small
2. Show a turntaking play style	No Effect	Very Large	No Effect
3. Intentionally communicate	No Effect	Large	No Effect
4. Communicate nonverbally	No Effect	Large	Small
5. Begin to communicate verbally	No Effect	Medium	No Effect
6. Make self understood	No Effect	Medium	No Effect
7. Use varied vocabulary	No Effect	Medium	No Effect
8. Follow grammatical rules	No Effect	Medium	No Effect
9. Converse for a variety of reasons	No Effect	Large	No Effect
10. Stay in verbal conversations	No Effect	Medium	No Effect
Adult Strategies			
1. Maintain and balance turntaking	No Effect	Very Large	Small
2. Wait, signal, and expect	No Effect	Very Large	Small
3. Match child behavior	No Effect	Very Large	Small
4. Imitate and animate	Small	Very Large	Medium
5. Match child communication progressively	No Effect	Very Large	Small
6. Respond to child	Small	Very Large	Small
7. Verbally match child communications	No Effect	Very Large	Small
8. Develop verbal topics	Small	Very Large	Small
9. Maintain balanced conversations	No Effect	Very Large	Medium
10. Have social, friendly conversation	No Effect	Large	Medium
11. Direct the child effectively	No Effect	Very Large	Medium

Magnitudes of Effects Sizes of ECOScale Items Observed at Selected Intervals Before and After ECO Treatment

BEST COPY AVAILABLE

TABLE 4. Social Attributes of Parent-Child Interactions Rated Before and After ECO Treatment

1.	Playful	The interaction is playful
2.	Each Other	The parent and child are communicating with each other.
3.	Interesting	The activity is interesting.
4.	Understandable	The child sends understandable messages (gesture, word, sound)
5.	Matching	The parent communicates in ways that are similar to the child's.
6.	Social	The child's behavior is socially acceptable.
7.	Parent Plays	The parent plays as well as talks.
8.	Partnership	The interaction is a partnership.
9.	Responsive	The parent responds to the child.
10.	Conversation	The conversation is interesting.

TABLE 5. Rating of Social Attributes of Parent-Child Interaction Before and After ECO Treatment with *t* Tests and Effect Sizes

	Difference	Pre treatment		Post treatment		(Post Minus Pre)		Effect
1.	Playful	3.60	2.21	6.24	1.93	2.64	2.76	9.92
2.	Each Other	3.46	2.29	6.71	2.01	3.25	2.69	12.50
3.	Interesting	3.48	2.19	6.06	2.15	2.57	2.37	10.25
4.	Understandable	3.73	2.25	6.08	2.29	2.36	2.47	9.85
5.	Matching	3.24	2.33	6.86	1.85	3.62	2.86	13.09
6.	Social	5.26	2.52	6.64	2.29	1.38	2.39	5.98
7.	Parent Plays	3.92	2.4	7.14	1.86	3.22	2.80	11.91
8.	Partnership	3.04	2.27	6.73	2.16	3.69	2.72	14.05
9.	Responsive	4.08	2.57	7.50	1.58	3.41	2.75	12.81
10.	Conversation	2.67	2.11	5.34	2.69	2.66	2.83	8.88
11.	Overall Rating	6.21	4.02	11.56	4.03	5.35	5.03	10.03